

In the Claims

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-50. (Canceled)

Claim 51. (New) A welding torch including a torch housing (28), wherein a drive unit (30) formed by at least one drive roller (31) and one pressure roller (32) as well as a drive motor (33) is arranged in the torch housing (29) for feeding a welding wire (13), wherein a part of the torch housing (28) is designed as a stator housing of the drive motor (33) of the drive unit (30), and bearings (43, 44) are provided on the torch housing (28) to stabilize and position a rotor (45) of the drive motor (33).

Claim 52. (New) A welding torch according to claim 51, wherein the torch housing (28) is comprised of several parts.

Claim 53. (New) A welding torch according to claim 51, wherein the torch housing (28) is comprised of a base body (37), a cover part (38), an extension part or torch retainer (40).

Claim 54. (New) A welding torch according to claim 53, wherein the base body (37) is formed by a part including a free space or opening (48) to receive the individual parts of the drive motor (33) and to which further elements are attachable.

Claim 55. (New) A welding torch according to claim 51, wherein a stator winding (47) of the drive motor (33) is directly installed in the torch housing (28).

Claim 56. (New) A welding torch according to claim 51, wherein stator magnets of the drive motor (33) are directly installed in the torch housing (28).

Claim 57. (New) A welding torch according to claim 51, wherein the bearings (43, 44) are directly integrated in the torch housing (28).

Claim 58. (New) A welding torch according to claim 51, wherein the bearings (43, 44) are mounted in an intermediate

piece and the intermediate piece (50) is directly fastened to the torch housing (28).

Claim 59. (New) A welding torch according to claim 51, wherein one bearing (43 or 44) is fixedly connected with the torch housing (28) and a further bearing (43 oder 44, respectively) is detachably fastened thereto.

Claim 60. (New) A welding torch according to claim 51, wherein the rotor (45) is designed as a motor shaft (46) including a rotor winding (49) and a rotor magnet.

Claim 61. (New) A welding torch according to claim 58, wherein an insulation plate (54) is fastened to the intermediate piece (50).

Claim 62. (New) A welding torch according to claim 58, wherein the drive roller (31) is directly fastened to the motor shaft (46).

Claim 63. (New) A welding torch according to claim 60, wherein the motor shaft (46) is connected with a gear and the drive roller (31) is coupled to said gear.

Claim 64. (New) A welding torch according to claim 59, wherein the gear is provided instead of, or in addition to, the intermediate piece (50), and the gear is fastened to the torch housing (28) or to the intermediate piece (50) or to the insulation plate (54).

Claim 65. (New) A welding torch according to claim 51, wherein the torch housing (28) is designed as a cooling body for the drive motor (33).

Claim 66. (New) A welding torch according to claim 51, wherein, in the region of the drive motor (33), cooling channels and/or cooling ducts (52) are arranged in the torch housing (28).

Claim 67. (New) A welding torch according to claim 51, wherein the burner housing (28) comprises cooling ribs (53) on its outer side.

Claim 68. (New) A welding torch according to claim 51, wherein the torch housing (28) is designed as a gun welding torch for a manual welding torch (60) including a grip (61), and the drive motor (33) is installed in the torch housing (28) in the region of said grip (61).

Claim 69. (New) A welding torch according to claim 51, wherein the motor shaft (46) is arranged axially to the welding wire (13), and the welding wire (13) extends through the hollowly designed motor shaft (46).

Claim 70. (New) A welding torch according to claim 51, wherein a control electronics for controlling the drive motor (33) is arranged in the torch housing (28).

Claim 71. (New) A welding torch according to claim 51, wherein a control electronics for the drive motor (33) is arranged externally, in particular in the welding apparatus (1) or in a wire feed device (11) etc.

Claim 72. (New) A welding torch according to claim 51, wherein at least one switching element is integrated in the torch housing (28) to control the welding process.

Claim 73. (New) A welding torch according to claim 51, wherein the torch housing (28) or a part of it is made of a thermally well conductive material and/or plastic material.

Claim 74. (New) A welding torch according to claim 51, wherein a mounting plate (55) to which required parts or guides are attached is arranged in the torch housing (28).

Claim 75. (New) A welding torch according to claim 51,
wherein the drive motor (33) is configured as a synchro motor.

Claim 76. (New) A welding torch according to claim 51,
wherein the drive motor (33) is configured as a direct-current
motor.

Claim 77. (New) A welding torch according to claim 51,
wherein the drive motor (33) is designed as a step motor.

Claim 78. (New) A welding torch according to claim 51,
wherein an insulation is arranged between the drive roller (31)
and the base body (37).

Claim 79. (New) A welding torch according to claim 78,
wherein said insulation is designed as an insulation layer (54)
formed between the drive roller (31) and the motor shaft (46)
and/or the motor shaft (46) and the rotor pack and/or the motor
shaft (46) and the bearings (43, 44) and/or the rotor pack and
the stator and/or the stator and the torch housing (28).

Claim 80. (New) A welding torch according to claim 73,
wherein the drive roller (33) and/or motor shaft (46) is made of
an electrically non-conductive material.

Claim 81. (New) A welding torch according to claim 51, wherein the torch housing (28) or a part of it is designed as a live part for the transmission of the welding current.

Claim 82. (New) A welding torch according to claim 51, wherein an insulation layer is applied over the torch housing (28) or a part of it, in particular the electrically conductive parts of the torch housing (28).

Claim 83. (New) A welding torch according to claim 51, wherein an insulation is provided between the torch retainer (40) and the torch housing (28), or the torch retainer (40) is made of an electrically non-conductive material.

Claim 84. (New) A welding torch according to claim 51, wherein the drive motor (33), in particular the stator winding (47) or the stator magnets and/or rotor winding (49) or rotor magnets, are expandable by additional modules to adjust, in particular, the output and response behavior of the drive motor (33).

Claim 85. (New) A welding torch according to claim 51, wherein an encoder is connected with the rotor (45) or the drive roller (31).

Claim 86. (New) A welding torch according to claim 51, wherein the individual parts of the drive motor (33) comprise a memory module for the recognition of the characteristics of the drive motor (33).

Claim 87. (New) A welding torch according to claim 51, wherein several drive motors (33) are arranged in the torch housing (28).

Claim 88. (New) A welding torch according to claim 58, wherein a tension lever (35) for the pressure roller (32) and the bearing of the pressure roller (32) are arranged on the intermediate part (50).

Claim 89. (New) A welding torch according to claim 51, wherein the torch housing (28) is divided along a rotor axis.

Claim 90. (New) A wire feed unit including a housing or a base body (37), respectively, wherein a drive motor (33) for feeding a welding wire (13) is arranged in the housing or base body (37), respectively, and wherein the wire feed unit is configured according to claim 51.

Claim 91. (New) A welding wire feed drive motor of a welding torch according to claim 51, including bearings (43, 44),

a rotor (45), in particular a motor shaft (46) and a rotor winding (49) or rotor magnets, and a stator pack, in particular a stator winding (47) or stator magnets, wherein at least a part of the motor shaft (46) is electrically insulated from a stator housing (65), or a base body (37), of an external component in the retention zone of a drive roller (31).

Claim 92. (New) A drive motor according to claim 91, wherein the electric insulation is formed by an insulation layer (54).

Claim 93. (New) A drive motor according to claim 91, wherein the insulation layer (54) is arranged between the housing and the stator winding (47).

Claim 94. (New) A drive motor according to claim 91, wherein the insulation layer (54) is arranged on the inner surface of the stator winding (46) and the bearing site is additionally insulated.

Claim 95. (New) A drive motor according to claim 91, wherein the insulation layer (54) is arranged between the motor shaft (46) and the rotor winding (49), and the bearing site is additionally insulated.

Claim 96. (New) A drive motor according to claim 91, wherein the motor shaft (46) is made of an electrically non-conductive material, in particular ceramic material.

Claim 97. (New) A drive motor according to claim 91, wherein the insulation layer (54) is applied or arranged over a partial region of the motor shaft (46), particularly in the end region.

Claim 98. (New) A drive motor according to claim 91, wherein the bearing (43, 44) is pressed in an insulating sleeve.

Claim 99. (New) A drive motor according to claim 91, wherein the bearing (43, 44) is comprised of an insulating hybrid bearing in which ceramic roll bodies are inserted or a bearing ring made of electrically non-conductive material is formed.

Claim 100. (New) A drive motor according to claim 91, wherein the drive motor (33) is capable of being integrated in a torch housing (28) forming the stator housing (65), of the welding torch (10) according to claim 51.